

more Internet backbone providers.¹³¹ We explain below, in Part IV.D.2. that Internet service providers themselves provide information services, not telecommunications (and hence do not contribute to universal service mechanisms). But to the extent that any of their underlying inputs constitutes interstate telecommunications, we have authority under the 1996 Act to require that the providers of those inputs contribute to federal universal service mechanisms.

67. With regard to the lines leased by Internet service providers to provide their own internal networks, the analysis is straightforward. We explain below that the Internet service providers leasing the lines do not provide telecommunications to their subscribers, and thus do not directly contribute to universal service mechanisms. The provision of leased lines to Internet service providers, however, constitutes the provision of interstate telecommunications.¹³² Telecommunications carriers offering leased lines to Internet service providers must include the revenues derived from those lines in their universal service contribution base.¹³³ The record reveals that at least some leased-line providers are complying with that requirement, and the prices paid by Internet service providers for their leased lines reflect that universal service obligation.¹³⁴

68. Internet access, like all information services, is provided "via telecommunications." To the extent that the telecommunications inputs underlying Internet services are subject to the universal service contribution mechanism, that provides an answer to the concern, expressed by some commenters, that "[a]s more and more traffic is 'switched' to the Internet . . . there will no longer be enough money to support the infrastructure needed to make universal access to voice or Internet communications possible."¹³⁵ To the extent that IP-based services grow, Internet service providers will have greater needs for transport to accommodate that level of usage. Those needs will lead to increased universal service contributions by providers of the leased lines that make up internal Internet service provider

¹³¹ One study indicates that transport costs, including incoming phone lines, leased lines and interconnection at a network access point, currently amount to roughly 25% of an Internet service provider's total costs. Lee W. McKnight & Brett A. Leida, "Internet Telephony: Costs, Pricing and Policy" (1997), at 14.

¹³² See *Universal Service Order*, 12 FCC Rcd at 9175, para. 780; 47 U.S.C. § 54.703.

¹³³ We base universal service contributions on "end-user telecommunications revenues." 47 C.F.R. § 54.703; *Universal Service Order*, 12 FCC Rcd at 9205-9212, paras. 842-57. Telecommunications revenues are treated as end-user revenues and are included in the funding base, unless the associated telecommunications offerings are provided to an entity that incorporates them into services that should generate their own universal service contributions. See *Instructions for Completing the Worksheet for Filing Contributions to the Universal Service Support Mechanism*, FCC Form 457, at 12. Because an Internet service provider is not such an entity, entities providing interstate telecommunications to Internet service providers must include the associated revenues in their universal service funding base.

¹³⁴ See, e.g., Worldcom comments at 8 n. 15 ("when UUNET purchases network capacity, a basic telecommunications service, from Worldcom Technologies, Inc., Worldcom reports those revenues to the USAC as revenues earned from an end user").

¹³⁵ Senators Stevens and Burns comments at 9; see also, e.g., Airtouch comments at 30-31.

networks.¹³⁶ More generally, the Internet backbone is currently growing at an exponential rate, as Internet-based services gain popularity and new Internet-based services are developed, leading to increased overall universal service support.¹³⁷

69. In those cases where an Internet service provider owns transmission facilities, and engages in data transport over those facilities in order to provide an information service, we do not currently require it to contribute to universal service mechanisms. We believe it is appropriate to reexamine that result. One could argue that in such a case the Internet service provider is furnishing raw transmission capacity to itself.¹³⁸ To the extent this means the Internet service provider is providing telecommunications as a non-common carrier, it would not generally be subject to Title II, but it "may be required to contribute to the preservation and advancement of universal service if the public interest so requires."¹³⁹ As a theoretical matter, it may be advisable to exercise our discretion under the statute to require such providers that use their own transmission facilities to contribute to universal service. This approach would treat provision of transmission facilities to Internet service providers similarly, for purposes of universal service, without regard to how the facilities are provided. We recognize, however, that there are significant operational difficulties associated with determining the amount of such an Internet service provider's revenues to be assessed for universal service purposes and with enforcing such requirements. There also are issues

¹³⁶ McKnight & Leida indicate that movement from zero to moderate use of IP telephony will nearly triple Internet service provider costs associated with purchasing transport. McKnight & Leida, *supra* note 126, at 14 (for the modeled Internet service provider, projecting such costs at \$7.37 million in the "baseline scenario" and \$21.56 million in the "IP telephony scenario").

¹³⁷ See Jeff Sweat, "Internet Demand Is Moving Faster Than Technology, Panel Says," *Information Week* (March 16, 1998), available at <<http://www.techweb.com/wire/story/0398iwld/TWB19980316S0017>>; Kate Gerwig & Salvatore Salamone, "ISPs Mortgage the Farm for Bandwidth," *Internet Week* (Sept. 1, 1997), available at <<http://www.techweb.com/se/directlink.cgi?INW19970901S0068>>.

¹³⁸ This is not inconsistent with our conclusion, above, that the 1996 Act built on the Commission's deregulatory actions in *Computer II*, so that "telecommunications" and "information service" are mutually exclusive categories. See *supra* Section II.C.1; see also Section II.B (describing *Computer II*). *Computer II* dealt with the relationship between an information service provider and its subscribers. Under *Computer II*, and under our understanding of the 1996 Act, we do not treat an information service provider as providing a telecommunications service to its subscribers. The service it provides to its subscribers is not subject to Title II, and is categorized as an information service. The information service provider, indeed, is itself a user of telecommunications; that is, telecommunications is an input in the provision of an information service. Our analysis here rests on the reasoning that under this framework, in every case, some entity must provide telecommunications to the information service provider. When the information service provider owns the underlying facilities, it appears that it should itself be treated as providing the underlying telecommunications. That conclusion, however, speaks only to the relationship between the facilities owner and the information service provider (in some cases, the same entity); it does not affect the relationship between the information service provider and its subscribers.

¹³⁹ 47 U.S.C. § 254(e).

relating to the extent to which Internet service providers would uneconomically self-provide telecommunications because of a universal service assessment.¹⁴⁰

70. The Commission in the *Universal Service Order* expressly characterized entities that "provide telecommunications solely to meet their internal needs" as telecommunications providers subject to our permissive contribution authority. It found that those entities "should not be required to contribute to the support mechanisms at this time, because telecommunications do not comprise the core of their business."¹⁴¹ Further, "it would be administratively burdensome to assess a special non-revenues-based contribution on these providers."¹⁴² We intend to consider, in an upcoming proceeding, the status of entities that provide transmission to meet their internal needs. To the extent that we conclude that such entities provide telecommunications, we would consider, among other things, whether there are efficient, effective ways to require information service providers that provide telecommunications to meet their own internal needs to contribute to universal service support so that our regulations do not create an artificial incentive for information service providers to integrate vertically. We also would consider whether, and to what extent, our reasoning applies to entities other than information service providers that provide interstate telecommunications to meet their own internal needs.

71. With respect to the facilities that make up the Internet backbone, the record does not reveal the extent to which firms providing telecommunications facilities as part of the Internet backbone are currently contributing to federal universal service mechanisms. Yet it seems clear that, in one manner or another, firms are offering telecommunications inputs in this context that underlie the ultimate provision of Internet services to the consumer. We believe we would need to consider these offerings in order to ensure that the goals of section 254 are fully realized.

72. Our thinking relating to the Internet backbone points up some of the limitations of our current approaches to implementing the universal service provisions of the 1996 Act. The technology and market conditions relating to the Internet backbone are unusually fluid and fast-moving, and we are reluctant to impose any regulatory mandate that relies on the persistence of a particular market model or market structure in this area. It may be that the most successful approach in this context, maintaining universal service revenues while avoiding the imposition of inefficient or innovation-discouraging obligations, would look to the actual facilities owners, requiring them to contribute to universal service mechanisms on

¹⁴⁰ We express no view in this Report on the applicability of this analysis to cable operators providing Internet access service. The Act distinguishes between Title II and Title VI facilities, and we have not yet established the regulatory classification of Internet services provided over cable television facilities. In the *Pole Attachments Telecommunications Rate Order*, we expressly declined to rule on that issue, finding that cable operators providing traditional cable services and Internet access services over the same facilities were entitled to the 47 U.S.C. § 224(d)(3) pole attachment rate without regard to the regulatory classification of their Internet-based services. See *Pole Attachment Telecommunications Rate Order*, at paras. 32-34.

¹⁴¹ *Universal Service Order*, 2 FCC Rcd at 9185, para. 799.

¹⁴² *Id.* See also April 8, 1998 letter from Representative White to Chairman Kennard, *et al.*

the revenues they receive. It is facilities owners that, in a real sense, provide the crucial telecommunications inputs underlying Internet service. If universal service contribution obligations, in the context of the Internet backbone, were based on facilities ownership rather than end-user revenues, then firms purchasing capacity from the facilities owners would still contribute indirectly, through prices that recover the facilities owners' contributions. This matter deserves further consideration.

2. Internet Access Services

73. We find that Internet access services are appropriately classed as information, rather than telecommunications, services. Internet access providers do not offer a pure transmission path; they combine computer processing, information provision, and other computer-mediated offerings with data transport. Senators Stevens and Burns suggest that services provided by Internet access providers should be deemed to fall on the telecommunications side of the line. When an Internet service provider transmits an email message, they maintain, it transmits "information of the user's choosing, without change in the form or content of the information as sent or received." Changes such as the addition of message headers, they argue, are inconsequential: "If the information chosen by the user has the same form (e.g., typewritten English) and content (e.g., directions to Washington, D.C.) as sent and received, then a 'telecommunication' has occurred."¹⁴³ Senator McCain, by contrast, urges that electronic mail, voice mail and Internet access are information services, because they furnish the capabilities to store, retrieve, or generate information.¹⁴⁴

74. In determining whether Internet access providers should be classed as providing information services rather than telecommunications services, the text of the 1996 Act requires us to determine whether Internet access providers merely offer transmission "between or among points selected by the user, of information of the user's choosing, without change in the form or content of the information as sent and received,"¹⁴⁵ or whether they go beyond the provision of a transparent transmission path to offer end users the "capability for generating, acquiring, storing, transforming, processing, retrieving, utilizing, or making available information."¹⁴⁶ For the reasons that follow, we conclude that the latter more accurately describes Internet access service.

75. We note that the functions and services associated with Internet access were classed as "information services" under the MFJ. Under that decree, the provision of gateways (involving address translation, protocol conversion, billing management, and the provision of introductory information content) to information services fell squarely within the

¹⁴³ Senators Stevens and Burns comments at 4; *see also*, e.g., LTD comments at 1-2; RTC comments at 13-14.

¹⁴⁴ Senator McCain letter at 3.

¹⁴⁵ 47 U.S.C. § 153(43).

¹⁴⁶ *Id.* § 153(20).

access to the Internet and internal connections, we conclude that ICN may receive reimbursement from the support mechanisms for providing such services.

b. Wide area networks

193. On our own motion, we further conclude that, to the extent that states, schools, or libraries build and purchase wide area networks to provide telecommunications, the cost of purchasing such networks will not be eligible for universal service discounts. We reach this conclusion because, from a legal perspective, wide area networks purchased by schools and libraries and designed to provide telecommunications do not meet the definition of services eligible for support under the universal service discount program. First, the building and purchasing of a wide area network is not a telecommunications service because the building and purchasing of equipment and facilities do not meet the statutory definition of "telecommunications."⁵⁸¹ Moreover, as the Commission determined in the *Order*, the definition of "telecommunications service" is intended to encompass only telecommunications provided on a common carrier basis.⁵⁸² Second, wide area networks are not internal connections because they do not provide connections within a school or library.⁵⁸³ We herein establish a rebuttable presumption that a connection does not constitute an internal connection if it crosses a public right-of-way.⁵⁸⁴ Third, wide area networks built and purchased by schools and libraries do not appear to fall within the narrow provision that allows support for access to the Internet because wide area networks provide broad-based telecommunications.⁵⁸⁵ For these reasons, therefore, we conclude that the purchase of wide area networks to provide telecommunications services will not be eligible for universal service discounts.

their needs most effectively and efficiently. The Commission included the following factors as among those that schools and libraries may consider in selecting a service provider: prior experience, including past performance, personnel qualifications, including technical excellence, and management capability. *Order*, 12 FCC Rcd 9029-30. See also section VI.A. for a discussion of the lowest corresponding price that providers must offer to an eligible school or library.

⁵⁸¹ 47 U.S.C. § 151(43) ("the term 'telecommunications' means the transmission, between or among points specified by the user, of information of the user's choosing, without change in the form or content of the information as sent and received").

⁵⁸² *Order*, 12 FCC Rcd at 9177-78.

⁵⁸³ It should be noted, however, that connections between multiple instructional buildings that comprise a single school or library would not be considered part of a wide area network, but would instead be considered internal connections. For example, connections between multiple instructional buildings on a single school campus would constitute internal connections. Connections between multiple separate schools, however, would not constitute internal connections and would instead be considered part of a wide area network. See *infra* section VI.H for a further discussion of the definition of internal connections.

⁵⁸⁴ See, e.g., 47 C.F.R. § 68.3 (definition of demarcation point).

⁵⁸⁵ This does not preclude schools and libraries from receiving universal service discounts on a wide area network run over leased telephone lines because such an arrangement constitutes a telecommunications service.

F. State Support

1. Background

194. In the *Order*, the Commission determined that eligible schools and libraries may receive discounts of between 20 percent and 90 percent on the cost of all telecommunications services, Internet access, and internal connections.⁵⁸⁶ Service providers will receive universal service support based on the pre-discount price of the services they sell to schools and libraries. The Commission defined the pre-discount price as the price of services to schools and libraries prior to the application of a discount.⁵⁸⁷ Certain states currently subsidize telecommunications services received by schools and libraries located within their jurisdiction. The *Order* did not address whether discounts under the federal universal service support mechanisms should be applied prior to the application of such state support or, alternatively, on the cost of service calculated after the application of any state support.

2. Pleadings

195. Iowa Telecommunications and Technology Commission asks the Commission to conclude that the provision of discounted telecommunications services to schools and libraries pursuant to a state subsidy program will not reduce the federal universal service support available to eligible entities.⁵⁸⁸ Iowa Telecommunications and Technology Commission contends that federal support should be based upon the full cost of a service, rather than on the post-support cost calculated after the deduction of any state support.⁵⁸⁹ It contends that, absent such confirmation by the Commission, states will be reluctant to adopt their own support programs that would further reduce costs to eligible entities.⁵⁹⁰ Iowa Telecommunications and Technology Commission also contends that states that have existing subsidy programs may be able to redirect some of their funding to costs that the federal program does not support, such as computers, modems and software, if federal universal service discounts are applied before the deduction of any state subsidy.⁵⁹¹ In its opposition to the Iowa Telecommunications and Technology Commission petition, USTA contends that this request "would appear to suggest that all telecommunications providers subsidize Iowa's state-wide network."⁵⁹²

⁵⁸⁶ *Order*, 12 FCC Rcd at 9002.

⁵⁸⁷ *Order*, 12 FCC Rcd at 9026-9027.

⁵⁸⁸ Iowa Telecommunications and Technology Commission petition at 6.

⁵⁸⁹ Iowa Telecommunications and Technology Commission petition at 6.

⁵⁹⁰ Iowa Telecommunications and Technology Commission petition at 6.

⁵⁹¹ Iowa Telecommunications and Technology Commission petition at 6.

⁵⁹² USTA opposition at 6-7.

REFERENCE AREA

S&L AREA

PROVIDER AREA

HELP

Reference - 470 Application Guidance

Fact Sheet on Wide Area Networks (3/2/98)**Definition of Wide Area Networks**

A wide area network is a voice or data network that provides connections from one or more computers within an eligible school or library to one or more computers or networks that are external to such eligible school or library. Excluded from this definition is a voice or data network that provides connections between or among instructional buildings of a single school campus or between or among non-administrative buildings of a single library branch [47 C.F.R. § 54.506].

Discounts on Wide Area Networks

Discounts will be available on wide area networks only if the services/components can be classified as an eligible service. [Para. 193 of Fourth Order on Reconsideration].

The services or components of a wide area network may be leased telephone lines because such an arrangement constitutes a telecommunications service. [Para. 193, note 585 of Fourth Order on Reconsideration]. Similarly, services leased from a wireless telecommunications carrier to provide a wide area network will be eligible for discounts.

Telecommunications services provided over a leased wide area network may be provided only by telecommunications carriers. Telecommunications carriers may be certificated to operate in a particular state, which may be determined by consulting your state regulatory commission or agency.

The term "lease" is used to refer to contractual arrangements whereby the ownership of the facility remains with the service provider. No ownership attributes will be undertaken by the lessee. The lessee is essentially the "renter" of the service or facility. In conventional telecommunications terms, the lessee is the "ratepayer" of services. Whether or not a contractual arrangement constitutes a lease will be based on a review of commercially reasonable terms and conditions. SLC will not commit to discounts on a contract that is titled or described as a lease when in effect the terms of the agreement constitute a purchase (for example, a lease which includes up front payment of capital costs will not be eligible for discounts).

A wide area network leased from service providers in addition to common carriers that is used to provide access to the Internet may be eligible for discounts, to the extent that the leasing of the wide area networks is the most cost effective means of Internet access. Under this scenario, the key consideration is that the facilities must be *leased* from a service provider, rather than purchased by the customer. [Para. 193 of Fourth Order on Reconsideration]. The price of Internet access which includes the leased wide area network service must be shown to be the most cost-effective means of obtaining the Internet access at the bandwidth connection provided over the network.

Since wide area networks do not constitute internal connections, the cost of purchasing components/service used for wide area networks will not be eligible for discounts. [Para. 193 of Fourth Order on Reconsideration]. If *purchased* components of eligible internal connections are also used to serve a wide area network, then the price of the components that may be purchased by an eligible entity to provide the internal connections may be allocated between internal connections and wide area network. The stand-alone price of the facilities/connections used to provide internal connections may be eligible for discounts, as computed in accordance with the SLC's cost allocation guidelines and procedures.

Examples of Discounts on Wide Area Networks